

Amendments and Remarks

In response to the Office Action mailed June 10, 2004, Applicants respectfully request reconsideration of the pending claims. To further prosecution of this application, Applicants submit the above amendments and the following remarks.

Claims 1-22 are currently active in the application. Claims 1-3, 5-6, 8-11, 13-15, and 17-19 stand rejected under 35 USC §102(e) as anticipated by Ohiwa et al. (US 6,710,504). Claims 1-3, 5, 8-10, 13-15, 17, and 19 stand rejected under 35 USC §102(e) as anticipated by Hsu (US 6,552,458). Claims 7 and 20 stand rejected under 35 USC §103(a) as unpatentable over Ohiwa et al. Claim 12 stands rejected under 35 USC §103(a) as unpatentable over either Ohiwa et al or Hsu in view of Molnar (US 5,895,994). Claims 4 and 16 have been objected to as dependent upon a rejected base claim but allowable if rewritten in independent form including all limitations of the base claim and any intervening claims.

Below, we discuss independent claims 1, 8, and 13, which are shown to be in condition for allowance. Claims 1 and 8 have been amended to correct a trivial mistake in the preamble. New claims 21 and 22 have been added in accordance with the suggestions of the Office Action.

Claims 1, 8, and 13 are allowable over the art of record.

Claim 1 is directed to a stator current controller within an electric motor where the inner surface of the motor rotor defines a bounded region. A circuit board coupled to the motor arbor lies, at least in part, within the bounded region and a magnetic field detector mounted on the circuit board lies within the bounded region.

The bounded region is further described in the specification. "The rotor magnets 215 have an inner rotor surface 218 that is considered to form a bounded region 219. This bounded region 219 effectively is a substantially cylindrical region bounded by the inner rotor surface 218 (i.e., by the rotor magnets 215.....). (See application page 5, lines 27-30.) Neither Ohiwa et al. nor Hsu describes a bounded region partially containing a circuit board and completely containing a magnetic field detector.

Ohiwa et al. describe a brushless dc motor where a Hall element is mounted on a printed wiring board. A rotor containing a magnet is mounted in an arbor. The magnet defines a substantially cylindrical bounded region extending vertically from the top to the bottom of the magnet and extending radially inward from the inner surface of the magnet. Inclusion of any region below the magnet as part of the bounded region, in fact, results in an unbounded region. There is no limit to the outward radial extent of such a region.

In neither of the embodiments shown in vertical sectional view in Figs. 3 or 5 does a printed wiring board or a Hall element lie within a bounded region as required by claim 1. Both the printed wiring board and the Hall element lie below and outside the bounded region as defined in the application.

Hsu describes a motor locator for a wiperless DC motor. A baseboard contains a sensing switch that further contains a chip sensing point. The sensing point senses the variation of magnetic force of the pole sections of the silicon sheet. As shown in Fig 3, the baseboard and the chip sensing point lie completely outside the bounded region defined by the inner surface of annular permanent magnet and not partially or completely, respectively, as is required for the circuit board by the first element of claim 1 and for the magnetic field detector by the second element of claim 1.

For at least the above reasons, claim 1 is allowable over the cited art and dependent claims 2-7 are allowable for at least the same reasons.

Similar arguments apply to the rejections of claims 8 and 13. Claim 8 requires a stator motor controller to include means for detecting a magnetic field produced by the rotor magnet, means for mounting the detecting means, and means for coupling the mounting means to the arbor and, at least in part, within the bounded region. Claim 13 requires a motor to contain a stator, a rotor with a rotor magnet where the rotor forms a bounded region, an arbor, a circuit board coupled to the arbor and, at least in part, within the bounded region, and a magnetic field detector.

As discussed above in the context of claim 1, neither Ohiwa et al. nor Hsu describe a mounting means located in part within the bounded region defined by the rotor or a circuit board coupled to the arbor and, at least in part, within the bounded region. In Ohiwa et al., the printed wiring board holding the Hall element lies beneath the magnet and outside the bounded region. In Hsu, the baseboard 1 and the sensing switch, which combine to hold the chip sensing point, lie beneath the annular permanent magnet and outside the bounded region.

For at least the above reasons, claims 8 and 13 are allowable over the cited art and claims 9-12 dependent from claim 8 and claims 14-20 dependent from claim 13 are allowable for at least the same reasons.

Claims 21 and 22 have been added in accordance with the suggestion of the Office Action. As claim 21 is a restatement of claim 1 further including the limitation of claim 4 and claim 22 is a restatement of claim 13 further including the limitation of claim 16, both claims 21 and 22 are in condition for allowance.

In view of the foregoing amendments and remarks, this application is now in condition for allowance, and a notice to this effect is respectfully requested. If the Examiner believes, after these amendments, that the application is not in condition for allowance, the Examiner is invited to call the Applicants' attorney at the number listed below.

Respectfully submitted,


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